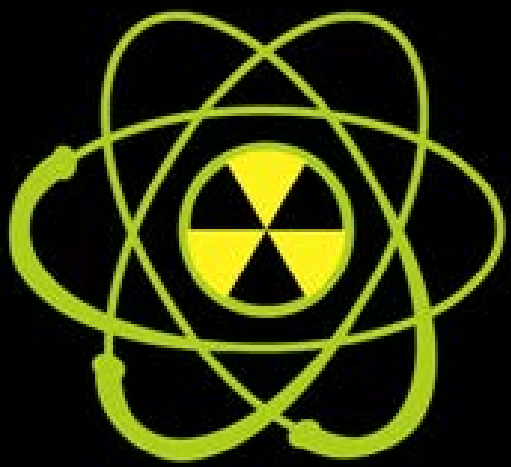
2017

After-Action Report/Improvement Plan
July 19, 2017 Web-Based



EXERCISE OVERVIEW

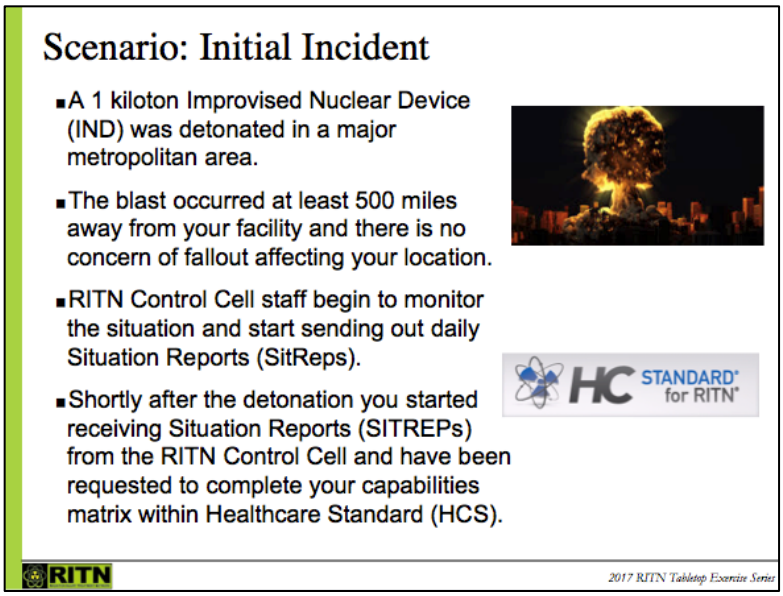
Exercise Name	2017 RITN Tabletop Exercise (TTX)
Exercise Date	July 19, 2017
Scope	This exercise is a distance-based tabletop exercise planned for 2 ½ hours. Exercise play is limited to RITN facilities and their response partners' collective challenges and considerations for improved and effective response.
Mission Area(s)	Response
Capabilities	Public Health & Medical Services
Objectives	**Objective 1:** Hospital staff are able to determine their hospital's capability to receive casualties (inpatient and outpatient) through the National Disaster Medical System (NDMS) following a mass casualty radiological incident. **Objective 2:** Hospital staff are able to discuss the procedures for implementing Crisis Standards of Care (CSC) at their hospital. **Objective 3:** Hospital staff are able to describe their approaches for triaging patients and determining initial treatment actions for patients with Acute Radiation Syndrome (ARS).
Hazard	Radiological
Scenario	Medical surge from a distant radiological incident
Sponsor	Radiation Injury Treatment Network® (RITN) National Marrow Donor Program (NMDP) Office of Naval Research (ONR)
Participating Organizations	See Appendix B
Point of Contact	RITN Control Cell RITN@NMDP.ORG

EXERCISE SUMMARY

On July 19, 2017, RITN centers and the RITN Control Cell participated in a tabletop exercise to discuss RITN centers planning actions for patient arrival, crisis standards of care under austere resource and medical management conditions, and medical care and treatment of arriving patients from radiological exposure. A facilitated series of exercise tasks were provided to participants for their consideration, response, and group discussion organized by the exercise scenario summary below.

Scenario Summary: The following illustrate the scenario events considered for participant discussion (Figure 1):

Figure 1: Exercise Scenario Ground Truth

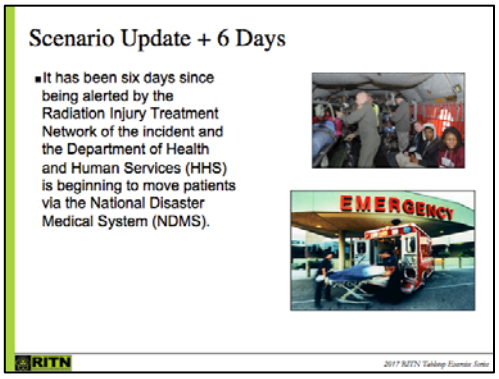


ANALYSIS OF CAPABILITIES

Module 1: Planning for Patient Arrival

Participants were provided the following update to the scenario information (Figure 2). Based on the scenario inject information, RITN Centers were asked to discuss multiple operational considerations regarding the receipt of NDMS patients. Considerations for patient receipt included aggressive changes and overflow into other hospital departments as well as repurposing previously identified space such as dormitories and gymnasiums.

Figure 2: Scenario Update Event + 6 Days



Completion of Capabilities Matrix: One-third of the participating centers (4 centers) stated no difficulty in completing the capabilities matrix. Two additional RITN centers indicated that their difficulty was attributed to recall of login credentials, but completing the requested data was not difficult.

The remaining participating centers discussed the challenges they face when completing the Healthcare Standard (HCS) Capabilities Matrix). The challenges these centers cited included:

- Instructions are unclear
- Difficulty in collecting data for input into the matrix
- Difficulty with interpretation of the bed definitions
- Effective and efficient communication (internally) among multiple groups is necessary in order to retrieve the data, which likely will be delayed during a response

Other factors contributing to their challenges included: number of beds will change based on the event; implementation of CSC may create challenges in completing HCS; and estimating staff as well as estimating staffed beds versus available unstaffed beds.

Intake of Patients: Aggressive Changes: Participating centers determined the following: The number of inpatients their RITN center could receive with aggressive changes and spill-over into other areas of their hospital (such as ICU or PACU) under the assumption that alternations in the standards of care were required. Examples provided of aggressive changes included aggressive patient discharges or transfers or a delay in the normal admissions process. The number of inpatients received was reported as (Table 1):

Table 1: Intake of Patients

RITN Center	Number of Patients
Children's Hospital of Alabama	20
Intermountain Primary Children's Hospital	10
Intermountain LDS Hospital	16 – 20
Mayo Clinic	250
Mount Sinai Hospital	6 – 10
NYU Langone Hospital	12
Presbyterian/St. Luke's Medical Center	50
Roger Williams Medical Center	10
University of Colorado	125
University of Florida Shands Hospital	16
University of Pennsylvania Medical Center	30
University of Wisconsin Medical Center	25
TOTAL	**944 - 952**

All RITN centers indicated that the number of patients received would be highly dependent on their medical care needs. Centers discussed the informational needs (such as staffing, type of beds needed, medical supplies) required in order for them to properly prepare to receive any NDMS patients.

Intake of Patients: Incorporating Large Facilities: After RITN centers determined the number of inpatients they could receive considering aggressive changes and spill-over, RITN centers determined the number of inpatients they could receive with the previous 2 considerations as well as implementation of crisis standards of care and incorporating large austere emergency treatment facilities previously identified (such as dormitories, gymnasiums or domed stadiums).

Table 2: Intake of Patients with CSC Implemented & Large Facilities

RITN Center	Number of Patients
Children's Hospital of Alabama	20
Intermountain Primary Children's Hospital	15
Intermountain LDS Hospital	10
Mayo Clinic	500
Mount Sinai Hospital	10 – 15
NYU Langone Hospital	12
Presbyterian/St. Luke's Medical Center	120
Roger Williams Medical Center	5
University of Colorado	500
University of Florida Shands Hospital	100
University of Pennsylvania Medical Center	70
University of Wisconsin Medical Center	25
TOTAL	**1,387 – 1,392**

Given these two additional considerations, a majority of the participating RITN centers indicated that use of alternate space within their facility, other hospitals within their corporate structure (or care network) would increase the intake of patients by at least 100%; although several facilities had minimal to no increase. Overall, more than 400 patients could be received with implementation of crisis standards of care and incorporating large austere emergency treatment facilities.

Communication with the FCC: If requested by the RITN Control Cell to communicate bed availability directly to their assigned Federal Coordinating Center (FCC), all participating RITN centers were able to quickly determine their facility's bed availability and provide that information to their local FCC.

Outpatient Housing: All but 2 participating RITN centers indicated that hotels have been identified as part of the planning process to house outpatients during RITN activation as well as traveling family members or others that may have accompanied the transported patient.

Strengths

The following strengths were demonstrated:

Strength 1: All RITN centers demonstrated the capability to receive patients under a variety of special and unique circumstances such as implementation of crisis standards of care, aggressive discharges or transfers, delayed admission processes, and spill-over into other areas or departments of their facility.

Strength 2: All RITN centers demonstrated and discussed the ability to rapidly determine their immediate bed availability using electronic bed tracking systems and incorporating their local healthcare coalitions as part of the collaboration with the RITN Control Cell and their local Federal Coordinating Center.

Strength 3: All RITN centers have formal agreements currently in-place with local hotels for accommodations as well as utilizing hospital-owned apartments and other alternate housing options for outpatients during RITN activation.

Areas for Improvement

The following areas require improvement:

Area for Improvement 1: The data field definitions for the Healthcare Capabilities Matrix should be reviewed to ensure clarity. RITN centers indicated difficulty in accurately reporting the data because they were unclear, for example, on the types of patients being sent and fluctuations in their staffing levels based on the patient demand.

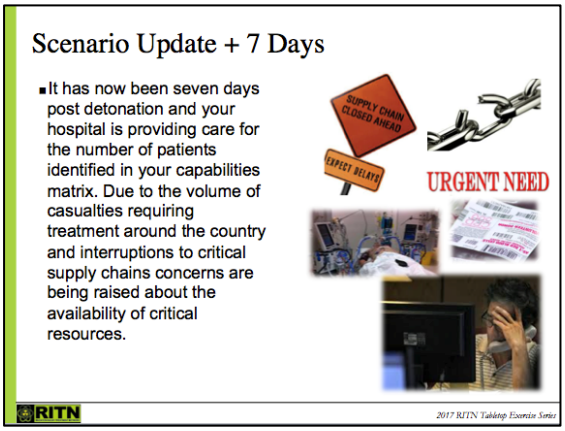
Area for Improvement 2: RITN centers emphasized the need to receive NDMS patient information well in advance of patient transport to the RITN Center. Awareness (or refresher) training should be provided on the NDMS program as well as the end-to-end process to prepare

and transport a NDMS patient to a RITN center. The NDMS patient manifest contains the medical information needed by RITN centers to ensure their planning for patient receipt aligns with the level and type of medical care needed. Centers would be able to accurately complete the Capabilities Matrix and plan for patient arrival.

Module 2: Crisis Standards of Care

Participants were provided the following update to the scenario information (Figure 4). Based on the scenario inject information, 7 days have elapsed since the detonation and RITN centers are experiencing disruptions to their supply chains and resources are running low given the volume of casualties requiring treatment across the country.

Figure 4: Scenario Update Event + 7 Days



Implementation of Crisis Standards of Care: Half of the participating RITN centers follow or utilize their State's policy as the foundation of their own crisis standards of care policy. Three participating centers stated having their own hospital policy while one center indicated use of their local healthcare coalition's policy. Two centers currently do not have a CSC policy and would seek guidance if implementation of crisis care is necessary. State departments of health and local healthcare coalitions were cited as the two most readily available resources. Eight (of 12) participating centers discussed internal committees (such as an Ethics Committee or Disaster Committee) that would convene and begin to coordinate crisis care discussions with the hospital incident management team. Centers would continue to follow their hospital's command structure and processes to increase crisis care awareness, develop/refine current CSC policies, and implement crisis standards of care. Internally, pastoral care, ethicists, compliance officers would be consulted as well as a variety of external partners such as the local health officer, the State Health Officer, and local emergency management agency, to discuss implementation of crisis care. Four of the six centers indicated that a national disaster declaration is sufficient to implement CSC; others stated State had the legal authority.

Half (6 of 12) participating RITN centers stated that a national disaster declaration is sufficient to implement crisis care at their facility; while 6 centers stated their State must provide the authority to implement crisis care. Six participating RITN centers stated state, city, county, or local jurisdictions have provided ethical codes/guidance regarding crisis care; while 6 centers indicated not having any crisis care guidance from any jurisdictional entity and also stated a lack of awareness of such ethical codes/guidance being provided by state, city, county, or local jurisdictions.

In the absence of CSC codes and guidance (i.e. if the scenario events occurred today), RITN centers discussed a variety of priority factors under consideration for making decisions on use of resources, such as (Table 2):

Table 3: Factors Influencing Resource Decisions

Primary Factors Influencing Resource Decisions	
Age of patient(s)	Comorbidities
Severity of exposure	Dosage
Exposure and likelihood of survival as compared to other patients within the group exposed	Availability of resources such as nursing and medical staff
Patients within the transplant system (or already in processing)	Patients who are scheduled for transplant but in complete remission with a donor selected and scheduled for donation
Internal guidelines for patients requiring transplants	Medical Ethics Committee would meet and make determination to align with institutional philosophy

RITN centers indicated that public messaging regarding CSC would need to be coordinate at all levels and led from the State. Messaging would emphasize explanations of medical terms/transparency with the public, ask the public to avoid non-urgent care at the RITN center, and include frequently asked questions. All participating centers indicated use of a joint information center as the conduit for dissemination of public messages (i.e. the joint information center would coordinate messaging and the outlets for distribution).

After 7 days post-detonation, RITN centers discussed those laboratory surge capabilities and all centers demonstrated local and/or regional laboratory surge support. Laboratory equipment, supplies, and laboratory staff, thyroid studies/tests was discussed to be in greatest need along with blood products. Additionally, supplies such as reagents, collection tubes, HLA supplies, blood draw supplies, and their capabilities to perform CBCs and run chemistries would be severely taxed approximately 2-weeks post-detonation and receipt of patients.

Table 4: Laboratory Surge Capacity

RITN Center	Max. CBCs with Differentials (Given Expected Resource Constraints)
Children's Hospital of Alabama	2,880 per day
Intermountain Primary Children's Hospital	400 – 500 per day
Intermountain LDS Hospital	1,700 per day
Mayo Clinic	2,000 – 3,000 per day
Mount Sinai Hospital	1,870 per day
NYU Langone Hospital	Not provided (incident specific)
Presbyterian/St. Luke's Medical Center	2,880 per day
Roger Williams Medical Center	80 per day

RITN Center	Max. CBCs with Differentials (Given Expected Resource Constraints)
University of Colorado	3,000 – 5,000 per day
University of Florida Shands Hospital	1,200 per day (900 automated, 300 manual)
University of Pennsylvania Medical Center	5,000 per day
University of Wisconsin Medical Center	Unknown

Given a multi-day notification of the receipt of patients, several RITN centers indicated delays should not occur, but the frequency of routine testing may be decreased. A majority of the participating RITN centers stated that all outpatient, routine testing, manual differentials, and chemistries would be delayed/deferred. Generally, all non-essential and non-emergent laboratory testing would be delayed or deferred given the events in the scenario and CBC with differentials, HLA testing, chemistries, and type and cross would be priorities.

Strengths

The following strengths were demonstrated:

Strength 1: RITN centers discussed existing policies or were able to quickly develop a process to assemble the appropriate guidance content, request assistance from the necessary experts or authorities, and implement crisis standards of care if needed.

Strength 2: RITN centers demonstrated plans and protocols to rapidly disseminate information to their staff and to the public and the resources to provide public messaging in multiple languages.

Strength 3: RITN centers demonstrated continuity planning to address laboratory resource shortages over an extended response timeframe to procure necessary staffing and supplies.

Strength 4: RITN centers were able to approximate a maximum number of CBC with differentials that could be processed daily in their laboratories, which at a minimum, would assist their ability to anticipate the type and amount of resource shortages to anticipate under the conditions in this scenario.

Areas for Improvement

The following areas require improvement:

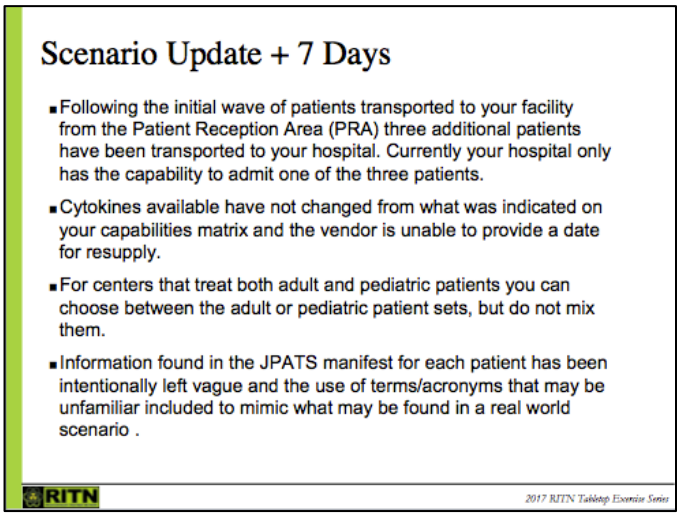
Area for Improvement 1: As part of improvement planning, RITN centers should review their policies or plans for CSC and ensure considerations related to the RITN program (such as the patients they may receive and impacts to their current inpatient population) are included in their crisis care policies and plans.

Area for Improvement 2: All RITN centers should review their laboratory supply chain as part of continuity of operations planning and confirm any existing laboratory supply vendor agreements that additional quantities of reagents, collection tubes, HLA supplies, blood draw supplies, and supplies related to CBCs and virology testing could be secured under the events described in this scenario. Additionally, RITN centers should identify laboratory technician/staff

to augment their existing levels and initiate discussions with those local/regional healthcare partners to explore mechanisms for the RITN center to utilize their staff if needed.

Module 3: Patient Treatment

Figure 6: Scenario Update Event + 7 Days



Participants were provided the following update to the scenario information (Figure 6). Based on the scenario inject information, 3 additional patients were transported to their RITN center following the initial wave of patients from the Patient Reception Area. Hospitals were instructed that they could admit one of the three patients transported to them based on their current capabilities to medically treat and manage the patient. RITN centers were also provided with patient profiles for these 6 patients.

Medical Management of the 1 Additional Patient: Ten RITN centers decided to assess the adult patients and admit 1 of them. The medical management of the admitted patients is as follows (Table 3):

Table 5: Adult Patient Management

Admitted Patient Management: Adults			
Decisions: Adults	**Patient 1**	**Patient 2**	**Patient 3**
Admit or Outpatient*	Yes 1 Center	Yes 4 Centers	Yes 7 Centers
Estimated dose upon arrival**	Dose: 4.7 grey Range: 2.7 – 7.7 grey	Dose: 3.2 grey Range: <1.0 – 3.6 grey	Dose: 7.0 grey Range: 3.6 – 9.7 grey
Administer G-CSF	Yes 4 Centers	Yes 7 Centers	Yes 6 Centers
Prophylactic antimicrobials	Yes 6 Centers Acyclovir Fluconazole Levaquin Ciprofloxin Vancomycin Zosyn	Yes 7 Centers Acyclovir Fluconazole Levaquin Ciprofloxin Vancomycin Zosyn	Yes 9 Centers Acyclovir Fluconazole Levaquin Ciprofloxin Vancomycin Zosyn
Treatment antimicrobials	Yes 2 Centers Vancomycin Acyclovir Keflex Cefepime Levaquin	Yes 9 Centers Vancomycin Acyclovir Keflex Cefepime Levaquin	Yes 2 Centers Vancomycin Acyclovir Keflex Cefepime Levaquin
Hydration (or other treatment)	Yes	Yes	Yes

Admitted Patient Management: Adults			
Decisions: Adults	**Patient 1**	**Patient 2**	**Patient 3**
Lab work, Consultations	• HLA typing, Daily CBC with differentials, Type & screen, chemistries, metabolic panel, central line, lymphocytes • Heme/BMT consult, bone marrow transplant consult, oncology, dietician, Social work, psychology • HLA type the sister	• Daily CBC with differentials, HLA typing, blood cultures, chemistries, glucose monitoring • Consult with infectious disease, orthopedics, diabetes, wound care management, medical oncology, endocrinology, breast cancer consult, ultrasound • Comorbidities (e.g. breast cancer, diabetes, leg wound) require close monitoring and would cause hospital admit	• Daily CBC with differentials, blood cultures, type and screen, intravenous fluids, HLA typing, dicentric chromosome assay, hydration and assess for other needs, antimetics, wound care, blood products, possible blood transfusions • Consults include hospice, comfort care, psychology, social services
*RITN centers did not reach consensus on patient admissions and 1 center did not determine a need to administer prophylactic or treatment microbials. **Centers calculated a wide range for the estimated dose upon arrival for the adult patients.			

Two RITN centers assessed the pediatric patients and decided to admit one of them. The medical management of the admitted patients is as follows (Table 4):

Table 6: Pediatric Patient Management

Admitted Patient Management: Pediatrics			
Decisions: Pediatrics	**Patient 4**	**Patient 5**	**Patient 6**
Admit or Outpatient	Yes	No	No
Estimated dose upon arrival	Dose: 5.0 – 6.0 grey	Dose: 3.0 grey	Dose: 4.0 grey
Administer G-CSF	Yes	No	Yes 1 Center
Prophylactic antimicrobials*	Acyclovir Cefepime Septra Levaquin Voriconazole	None	Acyclovir Cefepime Septra Levaquin
Treatment antimicrobials	No	No	No
HLA Typing	Yes	Yes	Yes
Hydration (or other treatment)	Yes	Yes	Yes

Admitted Patient Management: Pediatrics			
Decisions: Pediatrics	**Patient 4**	**Patient 5**	**Patient 6**
Lab work, Consultations	• Prophylactic antimicrobials, hydration/TPN/enteral feeds, Daily CBC, chemistries, Weekly viral surveillance, blood product support, central venous line placement, HLA typing • Consults include surgery, social services, neuropsychology, dietary, and childlife. • Potential bone marrow transplant.	• Outpatient follow-up, Daily CBC, CMP weekly, endocrine, possible surgery • Comorbidities will require additional consult, such as diabetes. • Social services for housing, transportation, and meals. • Endocrinology for diabetes as well as neuropsychology	• Outpatient follow-up, Daily CBC, CMP weekly • Social services for housing, transportation, and meals. • Consult psychology and social work
*RITN centers did not reach consensus on the prophylactic antimicrobial to administer to each patient or on which patients receive prophylactic antimicrobials.			

Strengths

The following strengths demonstrated:

Strength 1: Each participating RITN center demonstrated capability to medically manage admit of an additional patient following receipt of the initial wave of patients including the immediate provision of medical and mental/behavioral consultations necessary based on the patient's need.

Areas for Improvement

The following areas require improvement:

Area for Improvement 1: RITN centers should continue to discuss medical management of complex patient types such as those provided in this exercise. Consensus could not be reached among centers on a consistent estimated dose upon arrival for the adult patients. Continued discussion through training and exercises will provide an opportunity for the medical care teams to assemble and discuss the complex medical profiles of the NDMS patients they may receive given the events of this exercise scenario.

CONCLUSION

This report augments existing planning/training/exercising programs related to RITN center receipt and medical management of radiologically exposed patients transported to their center and their capabilities to provide medical care in austere situations in which crisis standards of care have been implemented. The strengths validate well-established aspects of the plans while the opportunities for improvement provide information to enhance, refine, or improve existing plans, protocols, policies, procedures, and systems. It is anticipated that the improvement plan will be incorporated into the efforts of each participating RITN center to strengthen the response of the radiation injury treatment network of hospitals and healthcare systems as it relates to the core capabilities identified in this report.

APPENDIX A: IMPROVEMENT PLAN

This improvement plan template has been developed specifically for the RITN centers participating in the 2017 RITN Tabletop Exercise conducted on July 19, 2017. RITN centers can utilize this table to organize the opportunities for improvement to augment and develop their own corrective actions.

Core Capability	Issue/Area for Improvement	Corrective Action	Capability Element[1]	Primary Responsible Organization	Organization POC	Start Date	Completion Date
Core Capability 1: [Capability Name]	1. [Area for Improvement]	[Corrective Action 1]					
		[Corrective Action 2]					
		[Corrective Action 3]					
	2. [Area for Improvement]	[Corrective Action 1]					
		[Corrective Action 2]					

[1] Capability Elements are: Planning, Organization, Equipment, Training, or Exercise.

APPENDIX B: EXERCISE PARTICIPANTS

Participating Organizations	
Children's Hospital of Alabama	Richard Brown
Children's Hospital of Alabama	Melissa Wallace
Children's Hospital of Alabama	Hucks Buchanan
Children's Hospital of Alabama	Vevelyn Wilson
Children's Hospital of Alabama	Hilary Hanes
Children's Hospital of Alabama	Diana Tate
Children's Hospital of Alabama	Rhonda Culver
Children's Hospital of Alabama	Stacy Flanagan
Children's Hospital of Alabama	Sarah Benton
Children's Hospital of Alabama	Hannah Jenkins
Children's Hospital of Alabama	Melissa Wallace
Children's Hospital of Alabama	Hucks Buchanan
Intermountain LDS Hospital	Linda Meaux
Intermountain LDS Hospital	Melissa Parran
Intermountain LDS Hospital	Julie Asch
Intermountain LDS Hospital	Karen Armatage
Intermountain Primary Children's Hospital	Sarah Gene Hjalmarson
Intermountain Primary Children's Hospital	Shawnda Ussery
Mount Sinai Hospital	Judith Archer
Mount Sinai Hospital	Brad Beckstrom
Mount Sinai Hospital	Kevin Chason
Mount Sinai Hospital	Ladislao Decenteceo
Mount Sinai Hospital	Kimberly Disanto
Mount Sinai Hospital	Nancy Escala
Mount Sinai Hospital	Lori Finkelstein-Blond
Mount Sinai Hospital	Patricia Galdon
Mount Sinai Hospital	Marie Grace
Mount Sinai Hospital	Gayle Hughes
Mount Sinai Hospital	Jeffrey Jhang
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Mount Sinai Hospital	Riana Justusson
Mount Sinai Hospital	Sara Kim
Mount Sinai Hospital	Jordon Abala
Mount Sinai Hospital	Holly Anderson
Mount Sinai Hospital	Molly Lawson
NYU Langone Hospital	David Bernstein
NYU Langone Hospital	Katie Thewes
NYU Langone Hospital	David Kaminefzky
NYU Langone Hospital	Lisa Greiner
NYU Langone Hospital	Kate Malenczak
NYU Langone Hospital	Regina Grinblat
NYU Langone Hospital	Anthony Ricchiuti
NYU Langone Hospital	Kelly McKinney
NYU Langone Hospital	Katie Belfi
Presbyterian-St. Luke's Medical Center	Patty Owens
Presbyterian-St. Luke's Medical Center	Hannah McNally
Presbyterian-St. Luke's Medical Center	Pat Wagner
Presbyterian-St. Luke's Medical Center	Bernice Apodaca
Presbyterian-St. Luke's Medical Center	Chris Fangmeier
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Presbyterian-St. Luke's Medical Center	Sharon Kelly
Presbyterian-St. Luke's Medical Center	Julie Stewart
Presbyterian-St. Luke's Medical Center	Vicki Snider
Presbyterian-St. Luke's Medical Center	Lisa Dowd
Presbyterian-St. Luke's Medical Center	Trista Carelock
Presbyterian-St. Luke's Medical Center	Miranda Ayala
Roger Williams Medical Center	Frank Castellone
Roger Williams Medical Center	Gina Conti
Roger Williams Medical Center	Mark Curtis

Participating Organizations	
Roger Williams Medical Center	Brett Davey
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Roger Williams Medical Center	Andre DeSouza
Roger Williams Medical Center	Elise Ferrara
Roger Williams Medical Center	Nancy Fogarty
Roger Williams Medical Center	Deb Greer
Roger Williams Medical Center	Christian Grimes
Roger Williams Medical Center	Jennifer Hudson-Parker
Roger Williams Medical Center	Pam Kusiak
Roger Williams Medical Center	Dawn Lewis
Roger Williams Medical Center	Jason Marsden
Roger Williams Medical Center	Liz Martino
Roger Williams Medical Center	Kathy Perry
Roger Williams Medical Center	Todd Roberts
Roger Williams Medical Center	Jim Willsey
Roger Williams Medical Center	Candy Wray
Roger Williams Medical Center	Danielle Rosen
Roger Williams Medical Center	Lauren Tellier-Castellone
Roger Williams Medical Center	Elinor Collins
University of Colorado	Deirdre Elder
University of Colorado	Dianna Pruden
University of Colorado	Veronica Broslawik
University of Colorado	Anne Allen
University of Colorado	Jamie Le-Lazar
University of Colorado	Regina Krell
University of Colorado	Devon Mullen
University of Colorado	Lindsey McMeninien
University of Colorado	Chris Koch
University of Colorado	Chris McStay
University of Colorado	Charles Little
University of Colorado	Jason Persoff
University of Colorado	Pat Conroy
University of Colorado	Clinton Andersen
University of Colorado	Denise Bowers
University of Florida Shands Hospital	Carey Hudson
University of Florida Shands Hospital	Linda Laird

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University of Florida Shands Hospital	Whitney McNeal
University of Florida Shands Hospital	Janna Toruno
University of Florida Shands Hospital	Ozzie Hunt
University of Florida Shands Hospital	Natalie Dotson
University of Florida Shands Hospital	Jamie Dos
University of Florida Shands Hospital	Shani King
University of Florida Shands Hospital	Sarah Wheeler
University of Florida Shands Hospital	Jackie Laurence
University of Florida Shands Hospital	John Wingard
University of Florida Shands Hospital	Binothie Soloasan
University of Florida Shands Hospital	Federic Rodriguez Quezada
University of Florida Shands Hospital	Nicki Santerfeit
University of Florida Shands Hospital	Jack Hsu
University of Pennsylvania Medical Center	Roger Osbourn
University of Pennsylvania Medical Center	Nick Pinizzotto
University of Pennsylvania Medical Center	Rick Boettinger
University of Pennsylvania Medical Center	Mark Ross
University of Pennsylvania Medical Center	Joanne Hinkle
University of Pennsylvania Medical Center	David Porter
University of Pennsylvania Medical Center	Emma Paras
University of Pennsylvania Medical Center	Mike Fink
University of Pennsylvania Medical Center	Eugene Janda
University of Pennsylvania Medical Center	Chris O'Keefe
University of Pennsylvania Medical Center	Mary Sell
University of Pennsylvania Medical Center	Faye Demuth
University of Pennsylvania Medical Center	Ashlie Nieves
University of Pennsylvania Medical Center	Saar Gil
University of Pennsylvania Medical Center	Mary Rogers
University of Pennsylvania Medical Center	John Wierzbowski
University of Pennsylvania Medical Center	Kathleen Cunningham
University of Pennsylvania Medical Center	Savannah Gore
University of Pennsylvania Medical Center	Janeen Ostaszowski
University of Wisconsin Medical Center	John Haas
University of Wisconsin Medical Center	Trent Yadro
University of Wisconsin Medical Center	Kurt Kellesvig

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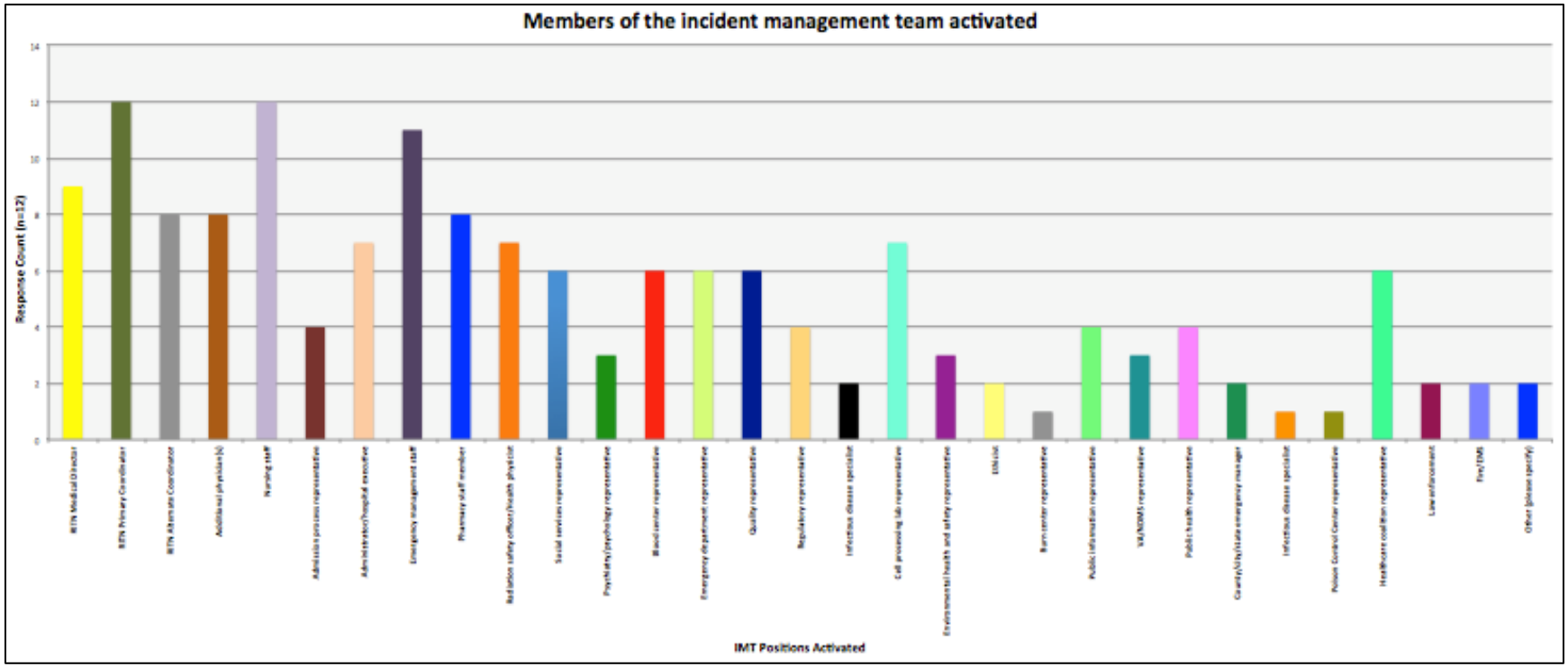
University of Wisconsin Medical Center	Chris Corrigan
University of Wisconsin Medical Center	Katie Winsor
University of Wisconsin Medical Center	L. Hofmann
University of Wisconsin Medical Center	Wayne Abbott
University of Wisconsin Medical Center	Kreg Grindle
University of Wisconsin Medical Center	Peiman Hemotti
University of Wisconsin Medical Center	Sarah Morrow
University of Wisconsin Medical Center	Brad Cords
University of Wisconsin Medical Center	Casey Fasmum
University of Wisconsin Medical Center	Sam Hays
University of Wisconsin Medical Center	Jessica Branson
University of Wisconsin Medical Center	Var Mack
University of Wisconsin Medical Center	Jason Timm
University of Wisconsin Medical Center	Nick Bell
University of Wisconsin Medical Center	Bethaney Campbell
University of Wisconsin Medical Center	Kim Brandt

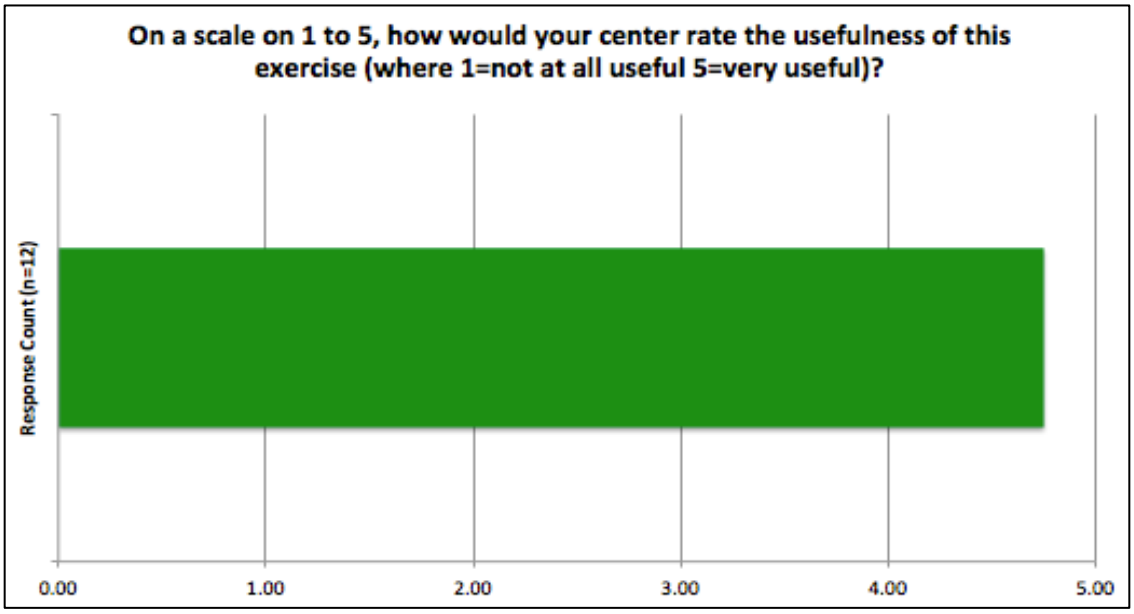
Members of the Incident Response Team Activated for the Exercise



APPENDIX C: PARTICIPANT FEEDBACK

RITN Centers were asked to provide some brief feedback on an online questionnaire following the exercise. The comments below are not in any particular order and are provided unedited to avoid intent changes.

Note: The average rating provided by the participating RITN centers regarding the usefulness of this exercise was 4.75 (out of 5.0). Number of responses = 12.



Based on discussions today, please briefly describe the 1 or 2 strengths demonstrated by your organization's ability to respond to a radiation mass casualty incident as described in this exercise scenario.	
Children's Hospital of Alabama	*Adequate hospital resources and support for surge of patients. Previous experience with natural disasters involving surge of patients.*
Intermountain Primary Children's Hospital	*Community support. Hospital system capacity to help with other patients.*
Intermountain LDS Hospital	*Have developed close relationship with PCMC to have discussions of where patients will be treated. Also, staff feels comfortable with prescribing treatment for the patient scenarios.*

Based on discussions today, please briefly describe the 1 or 2 strengths demonstrated by your organization's ability to respond to a radiation mass casualty incident as described in this exercise scenario.	
Mayo Clinic	*The group assembled was able to follow existing guidelines to allow for decision making specific to patient needs and situational demands. Support was readily available when any question was encountered.*
Mount Sinai Hospital	*Good participation by physicians, nursing, regulatory, labs, pharmacy, social work, etc. All participated and contributed to the exercise. Questions were discussed and a consensus was achieved without problems.*
NYU Langone Hospital	*Our ability to make quick decisions was a demonstrated strength during this exercise, especially as the information given for some of the exercise components were (purposefully) vague.*
Presbyterian/St. Luke's Medical Center	*I feel that we have incredible support from our senior leadership team in regards to our participation in the RITN. We have a commitment to move patients as needed to our sister facilities in town to accommodate RITN patients if needed.*
Roger Williams Medical Center	*Very strong communication with in the state of Rhode Island as well as Roger Williams Medical Center. Having the TTX yearly has been very instrumental in improving this process.*
University of Colorado Hospital	*The knowledge of staff members was exceptional. Getting everybody together to talk about procedures and understand capabilities was needed.*
University of Florida Shands Hospital	*Having a mass casualty plan in place that we have used in the past.*
University of Pennsylvania Medical Center	*The SEPA Healthcare Coalition has adequate resources, expertise, and capacity to be able to receive victims from a Radiation MCI.*
University of Wisconsin Medical Center	*UW Health has an excellent relationship with local major hospital and can rely upon our healthcare coalition in the event of a radiation mass casualty. UW Health also has a solid communication system and plan for use during emergency situations. Our departments and staff have shown the ability to work quickly and efficiently with one another under high stress situations.*

Based on discussions today, please briefly describe the 1 or 2 challenges demonstrated by your organization's ability to respond to a radiation mass casualty incident as described in this exercise scenario.	
Children's Hospital of Alabama	*Need to plan for large austere treatment facilities that could be used and staffed in a surge.*
Intermountain Primary Children's Hospital	*Staffing. Knowledge of our CSC.*
Intermountain LDS Hospital	*Need to involve more local emergency preparedness personnel. We also need to better understand the Crisis Standards of Care.*
Mayo Clinic	*Situational awareness is always a challenge. The lack of strong state and federal guidelines for CSC shifts responsibility unreasonably to the facility level and will create misalignment in processes.*
Mount Sinai Hospital	*Could have used an ethicist on the panel especially when discussing CSC. Will look to form a committee to discuss Crisis Standards of Care.*
NYU Langone Hospital	*The biggest challenge we identified was how we would address dozens or hundreds of patients coming to our facility. Based on this scenario, we expect that there would be more than 6 patients measured in orders of magnitude. If there were hundreds or thousands of patients coming into our area, I think we should have struggled much more. It would have had a less clinical focus, but would have garnered a much more conceptual conversation about how we absorb these patients.*
Presbyterian/St. Luke's Medical Center	*Vague patient information makes staffing decisions difficult. We may take patients that are very complex or get others that are very light so knowing where to place resources is a challenge until the patients actually arrive. We need to further clarify and record the emergency management already in place at the local and state levels so this information is readily available to us in an emergency.*
Roger Williams Medical Center	*The challenge continues to be the housing and transportation of family members.*
University of Colorado Hospital	*The scenario had plenty of time for us to actually receive patients. Given a five-day lead we anticipate being able to setup most processes with minimal issues. If anything, staffing would be the biggest issue, although most patients could probably be outpatient to some extent.*
University of Florida Shands Hospital	*Assessing who to admit with little information.*
University of Pennsylvania Medical Center	*Based on today's discussions, we made the decision to include our Ethics Committee in our RITN program. Also*

Based on discussions today, please briefly describe the 1 or 2 challenges demonstrated by your organization's ability to respond to a radiation mass casualty incident as described in this exercise scenario.	
	challenges with "longitudinal management" of patients requiring outpatient treatment, evaluation and follow up.
University of Wisconsin Medical Center	*While our communication has been excellent during emergency drills and routine activities, the ability to communicate effectively during an actual radiation mass casualty event would be tested. While drills and tabletop exercises such as this are extremely helpful to work out issues, it is hard to substitute for a real event.*

List and briefly discuss elements to address for future RITN exercises.	
Children's Hospital of Alabama	*We really enjoy these exercises. Nothing to add.*
Intermountain Primary Children's Hospital	*Explore local/state resources external to the hospital and how to partner more with them*
Intermountain LDS Hospital	*We understand how to treat patients once they are in our hospital. It would be helpful to better understand what happens before the patients show up at our door.*
Mayo Clinic	*Challenges to drive PIO/Public Affairs engagement.*
Mount Sinai Hospital	*Would like to see a more realistic count of actual patients we could receive in order to better prepare for those patients.*
NYU Langone Hospital	*Include a patient surge that spawns from a radiological attack in an urban area.*
Presbyterian/St. Luke's Medical Center	*As always, these exercises touch on a different topic that make us stretch a little bit to think about. As we stated in the hotwash, we interpreted this exercise to be on a large scale and that is what we worked toward in our numbers which I think is needed.*
Roger Williams Medical Center	*More detail on the patients, additional CBC results to better assess the radiation dose received.*
University of Colorado Hospital	*Not provided*

List and briefly discuss elements to address for future RITN exercises.	
University of Florida Shands Hospital	*More in depth case scenarios to see other institutions ideas.*
University of Pennsylvania Medical Center	*More time to work on patient scenarios and simulation and actual RITN activation.*
University of Wisconsin Medical Center	*It may be useful to include elements in the exercise that involve the RITN satellite phone and 'Government Emergency Telecommunications Service' (GETS) card.*

APPENDIX D: ACRONYMS

Acronym	Term
AAR	After Action Report
BMT	Bone Marrow Transplantation
BMP	Bone Marrow Program
CBC	Complete Blood Count
CMP	Comprehensive Metabolic Panel
CSC	Crisis Standards of Care
EKG	Electrocardiogram
FCC	Federal Coordinating Center
GCSF	Granulocyte Colony-Stimulating Factor
HCS	Healthcare Standard
HCT	Hematopoietic Cell Transplantation
HHS	Health and Human Services
HLA	Human Leukocyte Antigen
IV	Intravenous
IND	Improvised Nuclear Device
JPATS	Joint Patient Assessment and Tracking System
LFT	Liver Function Test
NMDP	National Marrow Donor Program
NDMS	National Disaster Medical System
ONR	Office of Naval Research
PACU	Post Anesthesia Care Unit
PPE	Personal Protective Equipment
RITN	Radiation Injury Treatment Network
SAT	Suicide Assessment Team
TRACES	Web based system to move and track patients
TTX	Tabletop Exercise